Table 6: The role and function of some of the blood products developed that can be transfused.

Name of Blood Product	Normal role	How it helps in blood transfusion and conditions	References
Erythropoietin	A hormone that regulates red blood cell production and is secreted in the kidneys.	It lowers the demand for transfusions for patients with cancer and premature newborn infants. It lowers the need for allogenic transfusion in surgery with and without autologous transfusion.	(Vanderlinde, Heal and Blumberg, 2002)
Aprotinin	This is an antifibrinolytic (prevents loss of blood)	Lowers blood loss at surgery. Perioperative anaemia. Minimise the need for phlebotomy for diagnostic testing. Jehovah's Witnesses who do not agree with allogenic transfusion have fewer transfusions in patients with critical care.	(Hebert *et al.* 1999; Vanderlinde, Heal and Blumberg, 2002)
Albumin	Plasma fractionation Products from Fresh frozen plasma: protein concentrates. Administering albumin requires acid, e.g. Albumin 200 g/L is hyperoncotic.	Increase plasma volume. Low albumin levels in blood (hypoalbuminaemia alkalosis) in critical patients.	(Basu and Kulkarni, 2014; Knudsen, 2025)

	Hyperoncotic is when there is high oncotic pressure exerted by plasma proteins like albumin that takes water, especially from the interstititum and place it into the circulatory system to maintain plasma volume. Interstitium is a fluid-containing space between organs and tissues. Albumin is commonly dissolved in salt (sodium chloride) or crystalloid, depending on the manufacturer.	Normal S-Albumin concentration varies with age and is approximately 40 g/L. .	
Immunoglobulins	Plasma fractionation Products from Fresh frozen plasma. It is a type of protein that functions in the adaptive immune response.	IgG is commonly performed in conditions: Hyperglobulinaemia (high levels of globulin in the blood). Immune thrombocytopenia (low levels of platelets in the blood and is associated with the immune system counteracting).	(Basu and Kulkarni, 2014)
Concentrates of Human clotting factors: Factor VIII and von Willebrand factor: 1: 2.4	VIII is an anti-hemophilic factor produced from platelets and the lining of the blood vessels (endothelium). Von Willebrand is essential for blood coagulation. The concentrates are normally taken 1 to 2 hours before surgery and then repeated every 12-24 hours.	Haemophilia A. Factor VIII deficiency. Von-Willebrand Disease Major Bleeding during surgery or post-surgery Ongoing bleeding	(Basu and Kulkarni, 2014; Knudsen, 2025; Crampton, 2023)

	Dose: 40-50 IU/kg for severe bleeding.		
Coagulation factor concentrate. **II, VII, IX, and X**	The stated coagulation factors (II, VII, IX, and X) are also referred to as the prothrombin complex. They are produced in the liver. Their production is facilitated by Vitamin K. Factor VII is also known as stable factor or proconvertin. It is a type of enzyme called serine protease. Factor IX, otherwise known as the Christmas factor. It is a type of serine protease enzyme. Factor II, also referred to as prothrombin. It is activated into thrombin to facilitate the formation of the fibrin blood clot. Factor X is the Stuart Prower factor. The CONFIDEX also has the coagulation inhibitors, Protein C and S, which depend on Vitamin K. Protein C acts as an anticoagulant by inactivating two clotting factors (Factor Va and Factor Vllla). Protein S helps Protein C to prevent blood clots. To calculate the appropriate dose of Confidex, the international normalised ratio (INR) is used.	Perioperative Bleeding (before operation) Deficiency of coagulation factors. A possible reason is having medications that inhibit Vitamin K (antagonists). In children: Congenital deficiency of the coagulation factors.	(Basu and Kulkarni, 2014; Knudsen 2025; Crampton, 2023)

	The value of before and the target INR are indicators for the dose. To identify the INR before treatment, it should be measured closer to the time of dosing.		